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16. Abstract  <p>Many construction projects involve the need to pump turbid water from borrow pits or other excavations into stilling basins or sediment bags prior to discharge. The design and operation of these basins needs to be optimized to provide the best water treatment prior to discharge. This project was designed to provide an evaluation of stilling basin designs and polyacrylamide (PAM) injection to minimize turbidity in discharged water. A Piedmont subsoil was mixed with water in a large holding pond which served as a source of the turbid water which was pumped into the stilling basin. Initial turbidities were in the range of 250-400 nephelometric turbidity units (NTU) in the source basin. Physical changes to the open basin, both with porous baffles and distribution along the bottom, significantly reduced turbidity or total suspended solids in the stilling basin, but the highest reduction was only 25%. Chemical treatment with PAM reduced turbidity and TSS by up to 88% and 84%, respectively, with little effect from the baffles or bottom spreader. Both types of PAM dosing systems worked well. There was some evidence that flocs formed after PAM treatment were intercepted by the dam slope. The porous baffle with 10% open pore space was significantly more effective than the baffle with 45% open pore space, but only when no PAM was added. The PAM treatments were highly effective and should be relatively simple and economical to use to reduce turbidity in pumped water.</p>			
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